

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0024] beginning on page 4 with the following rewritten paragraph:

-- In an embodiment of the invention, there are two flow path orifices 70, one adjacent to first dam wall 62 and one adjacent to second dam wall 74. The filtered water then passes through bypass orifice ~~74~~ orifice 50, which has a flow area greater than filter orifices 54, but less than support grooves 52, and filtered water is then directed to the high-pressure side (second side 42) of flexible diaphragm 22. Outer peripheral sealing ring 34 is defined on flexible diaphragm 22 and is radially spaced or offset from support grooves 52 and filter orifices 54. Support grooves 52 and chambers 58 are not in fluid communication with each other, in normal operation of flush valve 10, when liquid flows from support grooves 52 to ~~bypass~~ flow path orifices 70. --

Please replace paragraph [0027] beginning on page 5 with the following rewritten paragraph:

-- Referring to ~~Fig. 1~~ Figs. 1 and 7, an inner cover 100 is provided and positioned inwardly and adjacent to top ~~cap 102~~ cap 80. A relief valve or trip mechanism 104 is provided and positioned adjacent to locking member 90 and barrel slide 24. The relief valve or trip mechanism 104 rests on locking member 90 and is tripped through handle 82 in a manner well known in the art, such as that disclosed in the Saadi patent. Relief valve 104 includes an upper circular sealing disk 122 and an elongated stem 106 attached thereto which coacts with handle 82. --

Please replace paragraph [0029] beginning on page 6 with the following rewritten paragraph:

-- Peripheral portion 30 of diaphragm 22 includes the circumferential peripheral sealing ring 34 that extends along the outer periphery of diaphragm 22. Sealing ring 34 forms a liquid seal with body 12, top cap 80, and inner cover 100. First integral ring 36 is spaced radially from filter orifices 54. First integral ring 36 includes the plurality of circumferentially spaced support grooves 52 about the circumference of the diaphragm of which only a portion of the grooves is shown. The plurality of sets 56 of filter orifices 54 are

defined in respective chambers 58. Sets 56 and chambers 58 extend about the circumference of the diaphragm 22. --

Please replace paragraph [0034] beginning on page 7 with the following rewritten paragraph:

-- First integral ring 36, defining support grooves 52, provides support for diaphragm 22. The filter orifices 54 are in fluid communication with the circumferential passageway 64 defined on the second side 42 of diaphragm 22. Water passing through filter orifices 54 becomes filtered. The circumferential passageway 64 has a plurality of circumferential supports 66 having flow through passages 68 which provide no filtering function and have a right triangular flow dimension of about 0.070" high at the perpendicular leg and 0.085" wide at the base (Fig. 4). The circumferential supports 66 can alternatively have a U-shaped cross section. Two flow path orifices 70 are defined in circumferential passageway 64 to direct filtered water to bypass chamber 48 defined on first side 38 of diaphragm 22. The filtered water then passes through bypass orifice 50, which has a flow area greater than the filter orifices 54, but less than the support grooves 52 and flow through passages 68. Filtered water is then directed to the high-pressure side (second side 42) of diaphragm 22 adjacent pressure chamber 26. By filtering, it is meant is that filter orifices 54 remove from the water particulates and debris that are larger than the diameter of filter orifices 54, so as to prevent clogging of bypass ~~orifice 74~~ orifice 50, which has a larger diameter than filter orifices 54. Although the bypass orifice 50 is shown to be integrally formed in the diaphragm 22, a separate insert having bypass orifices 50 can be provided and secured in the diaphragm 22. --

Please replace paragraph [0035] beginning on page 8 with the following rewritten paragraph:

-- In a presently preferred embodiment, the diameter of bypass ~~orifice 74~~ orifice 50 is 0.020" and the diameter of filter orifices 54 is 0.014". The other flow paths have flow diameters greater than 0.020". Outer peripheral sealing ring 34 is defined on diaphragm 22 and is radially spaced or offset from support grooves 52 and filter orifices 54. Support grooves 52 and chambers 58 are not in fluid communication with each other during normal operation of flush valve 10, when water flows from support grooves 52 to bypass orifice 50.

Please replace paragraph [0036] beginning on page 8 with the following rewritten paragraph:

-- The operation of flush valve 10 is generally described as follows. In a normally closed position, as is shown in Fig. 1, water pressure P_1 , which is greater than atmospheric pressure P_0 , is communicated to pressure chamber 26 at inlet opening 14 through bypass orifice 50. Since the surfaces which are subjected to the water pressure P_1 are greater on second side 42 of diaphragm 22, the water pressure forces diaphragm 22 down onto valve seat 20, preventing water from flowing through outlet opening 16. Referring to Fig. 7, when a user moves handle 82 in any direction, a plunger (not shown) moves inwardly, tilting elongated stem 106 of relief valve 104. This action creates an opening 120 between diaphragm 22 and valve seat 20 releasing the pressure in pressure chamber 26 by allowing water to flow through barrel 78 as shown in Fig. 7. With the pressure in pressure chamber 26 relieved, the water inlet pressure forces diaphragm 22 to move upwardly, off of valve seat 20, allowing water to flow directly from the inlet opening 14, through opening 120, barrel 78, and outlet opening 16. When diaphragm 22 and relief valve 104 move upwardly, the relief valve resets itself, closing off the upper chamber. Water will then flow through the circumferentially spaced support grooves 52 and through the respective set 56 of filter orifices 54. The water will then flow through the circumferential passageway 64 and respective flow through passages 68 to the respective flow path orifices 70 via path 118 (Fig. 9). The filtered water will flow downward to first side 38 of diaphragm 22 into bypass chamber 46 and through bypass orifice 50. The filtered water then flows into exit chamber 48 and exit passages 116 into pressure chamber 26 until the diaphragm 22 is again forced against valve seat 20, thereby closing flush valve 10. During the closing of flush valve 10, barrel slide 24 moves downwardly with diaphragm 22 and the outwardly extended flexible flow ring 88. Flow ring 88 contacts barrel 78, again thereby minimizing water hammer effects and acting as a first seal until the radially inwardly seating ~~surface 98~~ surface 86 is sealed against valve seat 20. --